

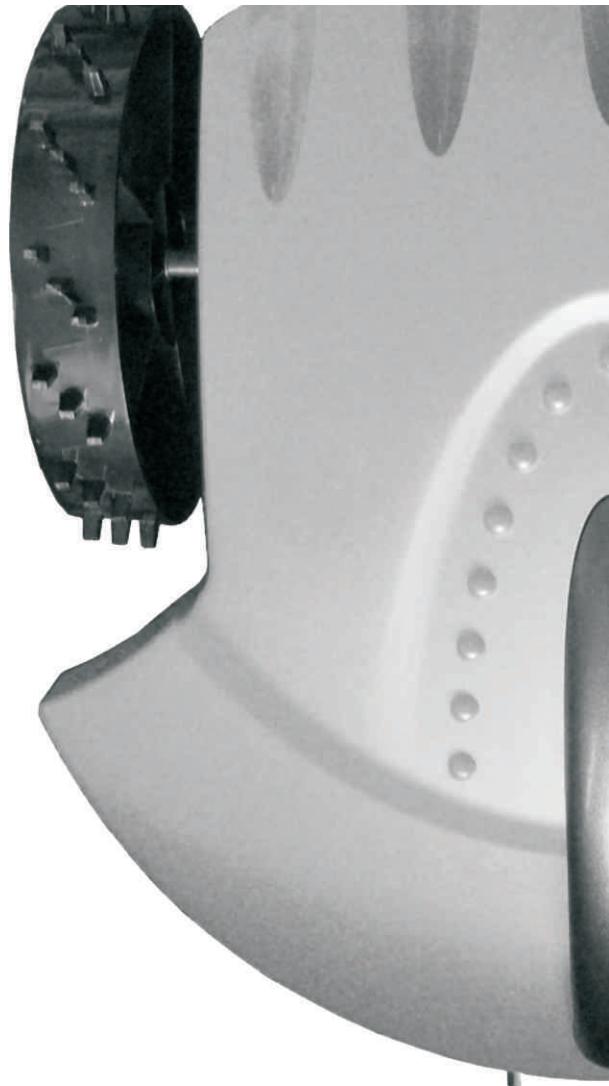
ROBOT MOWER USER MANUAL



Please read this manual before use

Please keep this manual for future reference

CE ROHS



The products are manufactured by Taizhou Tianchen Intelligence & Electrics Co., Ltd.
www.tianchen-cn.com

Thank you for purchasing our product. We know that you will enjoy the extra free time you will have while using our robot lawn mower to mow your lawn. You will be impressed with your lawn's appearance and best of all, robot lawn mower did it for you.

IMPORTANT!

The following pages contain important safety and operating instructions. Please read and follow and instructions in this manual. Carefully read and review all safety instructions, warnings and cautions contained in this manual.

Failure to read and follow these instructions, warnings and cautions statements may result in severe injury or death to persons and pets or damage to personal property.



WARNING

Robot lawn mower can be dangerous if incorrectly used!

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1. Introduction and safety

1.1 Introduction

Product, product specifications and this document are subject to change without notice. All other trademarks are property of their respective owners.

The lawn mower may be used only by those who know how to operate it after reading and understanding the instructions in this manual.

Model: TC-G158

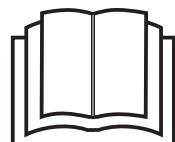
CE, RoHS approved.

The following pages contain important safety and operating instructions. Please read and follow all instructions in this manual. Carefully read and review all safety instructions, warnings and cautions contained in this manual.

Failure to read and follow these instructions, warnings and cautionary statements may result in severe injury or death to persons and pets or damage to personal property.

IMPORTANT INFORMATION

Read through the Operators Manual carefully and understand the content before



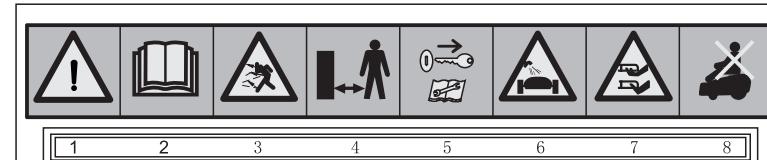
WARNING

Robot lawn mower can be dangerous if incorrectly used.

1.2 Symbols on mower

These symbols can be found in the mower. Study them carefully so you understand their significance.

1. The symbol is pasted on the top of mower, please read it carefully before using the appliance.



1. WARNING-this is a dangerous power tool. Use care when operating and follow all safety instructions and warnings

2. Read the owner/operating manual carefully and follow all safety instructions before operating the machine.

3. Objects can be thrown from mower while operating, keep a safe distance from the machine when operating, take caution.

4. Keep children, pets and bystanders away from mower when operating.

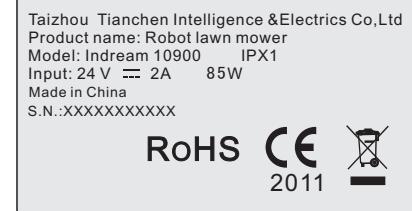
5. WARNING- Remove (Operate) the disabling device before working on or lifting the machine.

6. Never use a high-pressure washer or even running water to clean the mower.

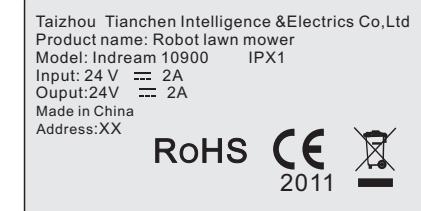
7. Sharp rotating blades. Keep hands and feet away and do not attempt to lift mower from this area.

8. WARNING- Do not ride on the machine.

2. Specifications symbol



Pasted on mower



Pasted on charging station

ADDRESS: XX

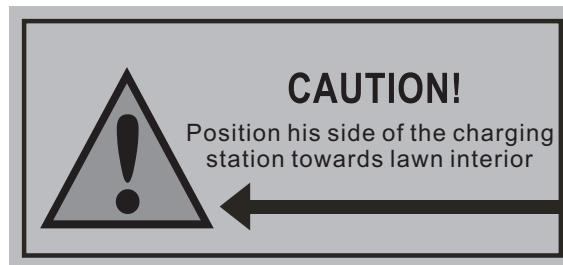
The factory has set the address already, which is to match the communicate between charging station and mower.

S.N.: XXXX XX XX XXX
year month date number

 : Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.

3. Charging station symbol.

This label is pasted on charging station, please make sure to position this side towards lawn interior. Failure to do may result in damage to property or persons.



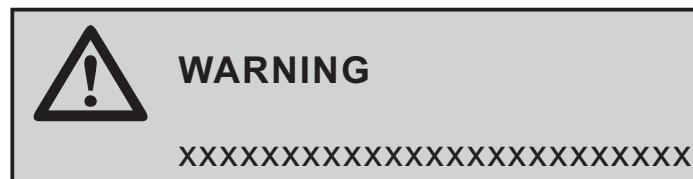
4. Warning symbol.

DANGER! Sharp rotating blades. Keep hands and feet away. Serious injury can occur.



1.3 Symbols in the User Manual

These symbols can be found in this owner/operating manual. Study them carefully so you understand their significance.



A warning box indicates a risk of personal injury exist, especially when the stated instructions are not followed.



An information box indicates a risk of material damage exist, especially when the stated instructions are not followed. The box is also used where there is a risk of user error.

1.4 Safety instructions

- Read the owners/operation manual carefully and follow all the safety and warning instructions.
- This machine has sharp rotation blades! Never allow the mower to operate unattended; keep bystanders, children and pets away from mower when in operation.
- Never allow anyone to ride or sit on mower.
- Never allow anyone or person who is not familiar with the safe operation of the mower to operate the mower.
- Keep hands and feet away from the cutting blades and other moving parts.
- Never attempt to service or adjust the mower while it is in operation.
- Inspect and clear the mowing area of all debris (toys, tree branches, items of clothing, debris' height less than 6cm. etc) before operating the mower.
- Never raise the mower or attempt to inspect the blades while the mower is operating.
- Always turn off the power before lifting the mower or attempting any adjustment.
- When operating the mower in manual mode, maintain a safe distance from behind or around the mower and wear proper foot apparel.
- Do not operate the mower on slopes greater than 20 degrees or use it in manual operation on slopes where a firm footing is not possible.
- Do not operate the mower if any safety feature or device is damaged or inoperable.
- Do not attempt to disable or defeat any safety feature or device.

1. INTRODUCTION AND SAFETY

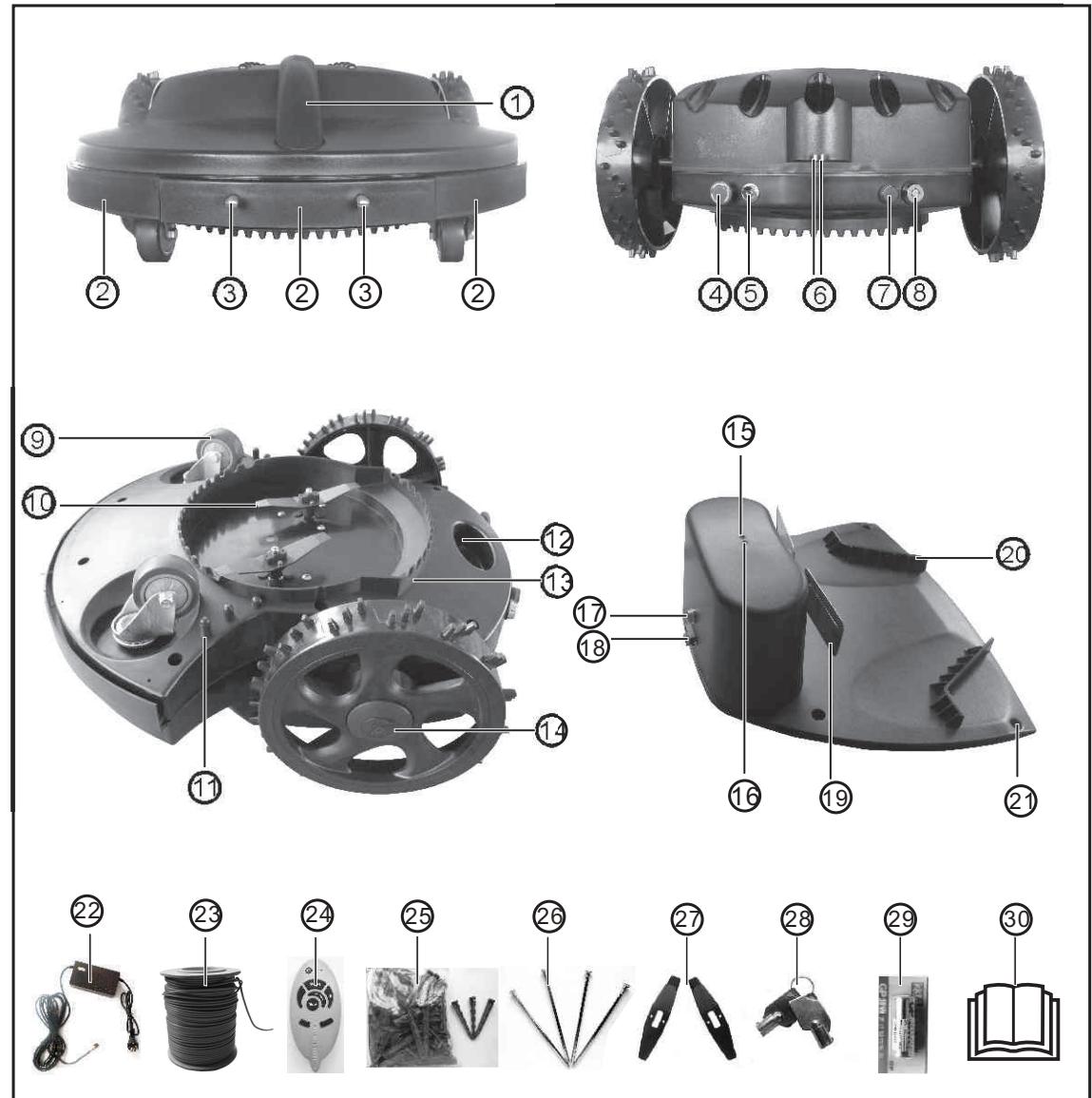
- Use heavy gloves when inspecting or servicing the blades.
- Wear eye protection and use gloves when installing the virtual wire and driving the wire stakes/pegs. Firmly drive all pegs in order to keep the wire from becoming a tripping hazard.
- Do not use the charging station power supply with an extension cord.
- Use only the original equipment power pack and power supply/charger with this mower.
- Do not use the power supply/charger if the cord has become damaged.
- Do not place metal objects in the area of the charging contacts on the charging station.
- Do not place metal objects across the charging pins of the mower.
- Do no spray water directly into the docking area of the charging station or onto the operating panel of the charging station.
- The mower has sharp rotating blades! Please care the mower when it is mowing, in case of serious injury occur.
- Keep the lawn mower in perfect operating conditions by performing the maintenance procedures outlined by the manufacturer. Good maintenance guarantees better performance and longer service life.
- In order not to irreversibly damage electric and electronic parts, do not wash the robot with water jets at a high pressure and do not plunge it partially or thoroughly in water, as it is not watertight.
- It is absolutely forbidden to use the robot in explosive and flammable environments.
- The operator or user is responsible for accidents or hazards occurring to other people or their property.

2. PRESENTATION

2. Presentation

This chapter contains information you should be aware of when planning the instalation.

2.1 What's in box



2. PRESENTATION

- ① Handle:
- ② Bumper:
To change a new direction when it bump obstacles.
- ③ Charging point
- ④ Emergency switch:
Press it at any time, the mower turn off at once.
- ⑤ Charging terminal:
Connect with charger for recharge directly.
- ⑥ Rain sensors:
Mower goes back to charging station automatically when it rains.
- ⑦ Power light
- ⑧ Key switch:
 - “” on
 - “” off
- ⑨ Omni-directional wheel
- ⑩ Blade
- ⑪ Safety hence:
To keep off foot and hands
- ⑫ Handle
- ⑬ Blade shed
- ⑭ Tyre cover:
Take it out and change the wheel.
- ⑮ Virtual wire light
Red: broken wire/idle
Colorless: good wire connecting
- ⑯ Charging light
Red: charging
Green: fully charged or idle
- ⑰ Charge terminal
- ⑱ Virtual wire terminal
Connect the virtual wire randomly.
there is no positive and negative.
- ⑲ Charging sheet
- ⑳ Guide channel
- ㉑ Stakes hole
- ㉒ Charger
Used for directing the mower to charging station or for recharge directly.
- ㉓ Virtual wire / 100m
Used to mark mowing area and create a virtual wall for the mower.
- ㉔ Remote control
- ㉕ Pegs / 100pcs
Used for fix the virtual wire to the ground around the lawn perimeter and around obstacles.
- ㉖ Stakes / 4pcs
Used for fix the charging station to ground.
- ㉗ Blades
Two blades pre-installed on the mower and two extra.
- ㉘ Key / 2pcs
- ㉙ Remote control battery
- ㉚ English user manual

Consumable parts

- 1. Blade
- 2. Virtual wire
- 3. Pegs

2. PRESENTATION

2.2 Functions

- Lift sensor

There are lift sensors located on each omni-directional wheel. If the mower was lifted 2cm from the ground in level way, it will stop working within 2 seconds.

- Tilt sensor

There is tilt sensor installed on the mower too, when the mower was tilted over 30 degree at any direction, it also will stop working within 2 seconds.

- Bump sensors

In front of the mower there equipped with bump sensors that will activate when the mower strikes solid, fixed object when that object is at least 6.5cm in vertical height from the supporting surface of the mower. When the bump sensor is activated, the mower will stop movement in that direction and reverse itself away from the obstacle.

- Rain sensors

There are two rain sensors on top cover of mower. The mower will go back to the charging station automatically when it's raining.

- Wireless controller

To control the operate of mower in manual pattern.

- Anti-theft function

The mower should be turned on by key. And it can't start working without a matched charging station.

- Virtual wire

The robot lawn mower can't operate without a virtual wire. (we suggest to use 100m-300m of virtual wire). It leads the mower back to charging station and the mower will take it as a wall when it is operating. It will get on the virtual wire until it meets charging sheet which located in front of charging station, then it gets off virtual wire and starts cutting

- Cutting height selection

There are two choice, 3cm and 4cm.

2. PRESENTATION

- **Cutting width:28cm**

- **Auto recharge system**

When the mower is operating it feels powerless, the cutting motor turn off at once and it will find the virtual wire then go alone it back to charging station for recharge automatically. (this allows you to keep the charger connected with the charging station all the time, even after the battery is fully charged.) On auto pattern, the mower will go on mowing after fully recharge. But if it is on manual pattern, it will just stay on charging station after fully recharged.

- **Emergency stop switch**

There is an emergency stop switch located on the back of mower and red in color. If you press it in any case during operating, the mower must stop all movement and stop the rotating of blades immediately. Rotating the switch to reset it.

- **Two cutting modes**

There are two cutting modes of the mower, go straight and go circle (high efficiency). Go circle only effect on Auto pattern.

- **Overload protect**

Each of the two blade motors and each of the two wheel driving motors are monitored continuously during operation for any situation that may cause these motors to over-load. In the event this is detected, the mower will stop operating.

- **Three steps to safe start the appliance**

Three necessary steps to start the mower: firstly, connect virtual wire to charging station and make sure it is in good connecting (virtual wire light on charging station is colorless). Second, connect charging station with power supply through charger and the charging station light is in green color. Third, turn on the power of mower by key and choose operating pattern from remote control. The mower start working.

2. PRESENTATION

2.3 Technical data

Model	TC-G158 with lead-acid	TC-G158 with lithium
Mower technical data		
Gross weight	21KGS	18.5KGS
Net weight	18.5KGS	16KGS
Mower size	56*51*25cm(LWH)	56*51*25cm(LWH)
Power	85W	85W
Noise	≤65db	≤65db
Qty for cutting blades	2pc	2pc
Cutting height	3cm, 4cm	3cm, 4cm
Cutting width	28cm	28cm
Cutting speed	20m/min	20m/min
Blades rotate speed	5000rpm	5000rpm
Hill capability	30degree Maxslope	30degree Maxslope
Max ambient functioning temp.	40°C	40°C
Coverage(for once charging)	600m ² +20%	600m ² +20%
Working capacity	1500m ² +20%	1500m ² +20%
Warranty	1 year	1 year

PS:

How large an area is mown per once recharge depends primarily on the condition of the blade and the type of grass, growth rate and humidity. The shape of garden is also significant. If the garden mainly consists of open lawns, mower can mow more per hour than if the garden consists of several small lawns separated by trees, flower beds and passages.

Charging station and virtual wire

Charging station size	38.5*44.5*16cm(L W H)	38.5*44.5*16cm(L W H)
Virtual wire maximum length	200m	200m
Standard virtual wire length	100m	100m

2. PRESENTATION

Model	10900	11000
Battery		
Type of battery	Lead-acid battery	Lithium battery
battery	7.2Ah	7.2Ah
Charging time	3-4hours	4.5hours
Average working time	2-3hours	2-3hours
Functions:		
Around virtual wire walking option	X	X
Mower can't be started when charging station is powerless	✓	✓
Mower can't be started when virtual wire has be cut	✓	✓
Intelligent lawn testing	✓	✓
Rain sensor	✓	✓
Auto recharge	✓	✓
Intelligent spiral	✓	✓
Go straight	✓	✓
Anti theft	✓	✓
Lift sensor	✓	✓
Tilt sensor	✓	✓
Ultrasonic wave	X	X
Bumper sensor	✓	✓
LED display	X	X
Waterproof	✓	✓
Human sensor	X	X
Time set-up system	X	X
Emergency switch	✓	✓
set up password	X	X
Rain sensor option	X	X
Around virtual wire option	X	X

2. PRESENTATION

2.4 Working route

Manual pattern

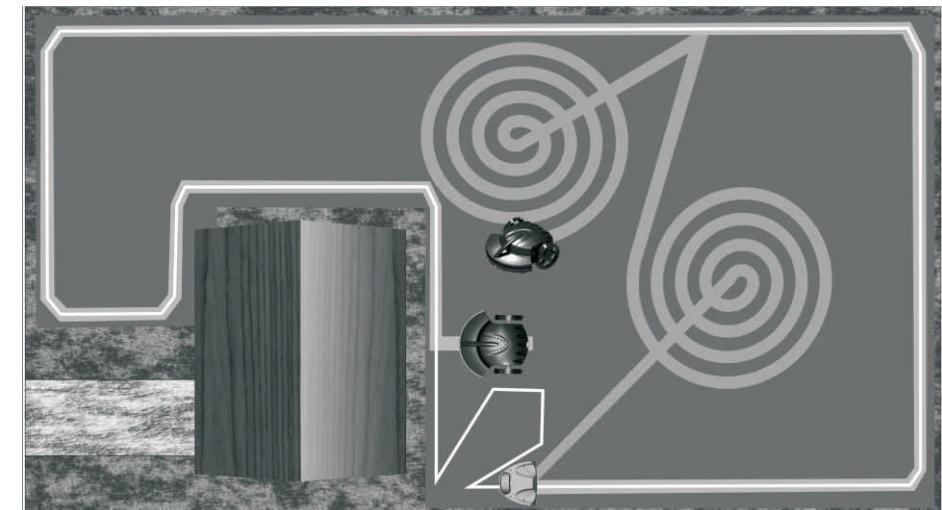
Mower's running path by user's willingness.

IMPORTANT INFORMATION

User turn on the mower and select Manual pattern,
The mower will not going to find the virtual wire .

Auto pattern

Cutting route when Line is turned on.



3. Installation

This chapter describes how you install this mower. Before starting the installation read the previous chapter 2. Presentation.

Read the whole of this chapter too before starting the installation. How the installation is made also affects how well the mower will work. It is therefore important to plan the installation carefully.

3.1 Preparations

Training

- Read the instructions carefully. Be familiar with the controls and the proper use of the appliance.
- Never allow people unfamiliar with these instructions or children to use the appliance. Local regulations may restrict the age of the operator.
- The operator or user is responsible for accidents or hazards occurring to other people or their property.

3.2 Hardware adjustments

Blade adjustment

The mowing system used by this mower is based on an effective and energy efficient principle. Unlike normal lawn mowers, the mower cuts the grass instead of striking it off.

We recommend you allow the mower to mainly mow in dry weather to obtain the best possible result.

The blades must be in good condition to obtain the best mowing result. In order to keep the blade sharp for as long as possible it is important to keep the lawn free from branches, small stones and other objects (especially the objects less than 6.5cm height).

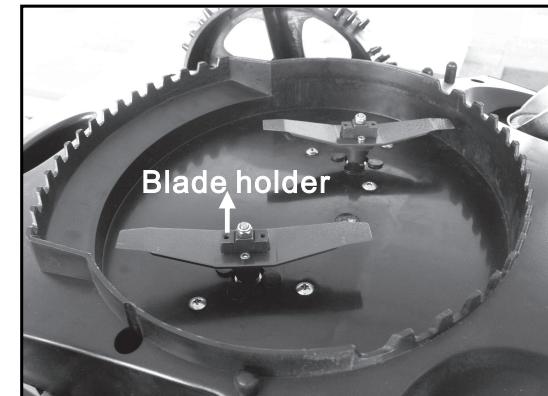
How to adjust the cutting height:

- The cutting height can be varied for 3cm and 4cm. (Factory setting of blades is 4cm)

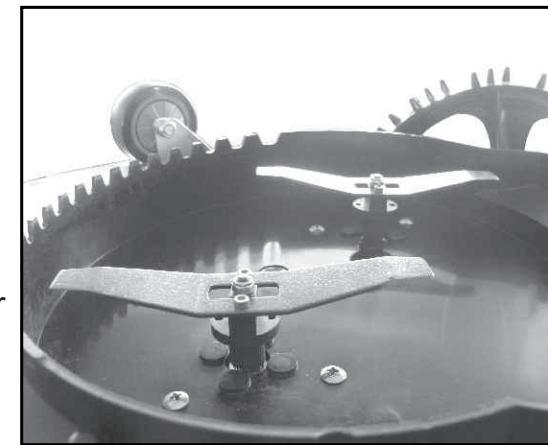
If the grass is long, it is appropriate to let the mower start mowing at 4cm. Once the grass is shorter, you can change it lower with 3cm.

- To adjust the cutting height:

1. Stop the mower and take off the key.
2. Turn over the mower to underside. It's easy to find that there are two blades fix on the blades holder. Swing the 4 screws on blades holder. And take blades out.
3. There are two levels on the Blades Holder, level 3cm and level 4cm.
4. Choose your cutting height (3cm or 4cm), and then fix the two blades with screws.
5. Turn over the mower to upside. Cutting height adjustment finished.



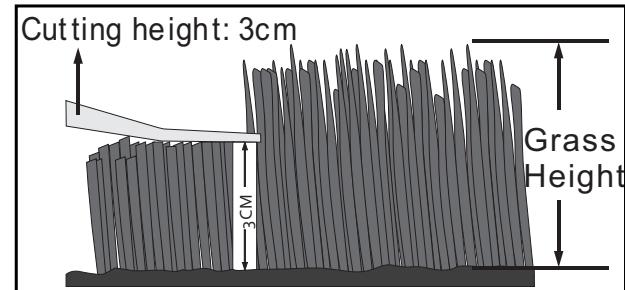
Level 4cm



Level 3cm

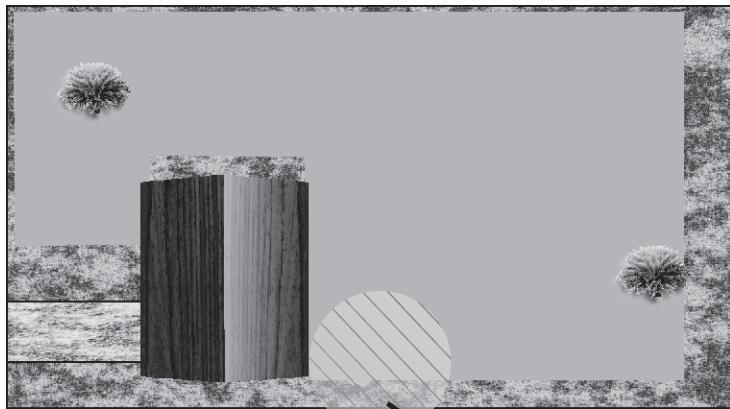
Cutting height explanation:

For example the cutting height is in 3cm level.



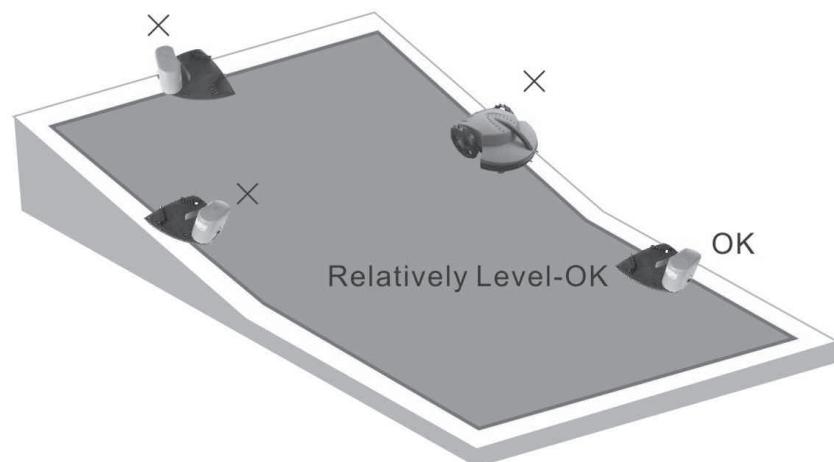
3.3 Charging station installation

- Choose best installation place, please make sure which is flat, no water, no magnetic interference and no obstacle in the front of charging station.

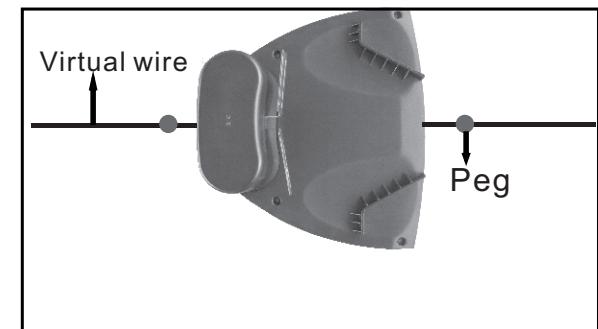


Charging station best install place:
 1. Make sure it
 2. No magnetic interference
 3. No water
 4. No obstacle in front

- Please fix the charging station in level place.



- Lay virtual wire in the middle of charging station.



- Fix the charging station with four stakes.



IMPORTANT INFORMATION

Before fix the charging station on the lawn, please examine the lawn and decide the best location which is easy for the mower to find the station for recharge.

3.4 Virtual wire installation

The virtual wire can be installed in one of the following ways:

- **Securing the wire to the ground with pegs.**

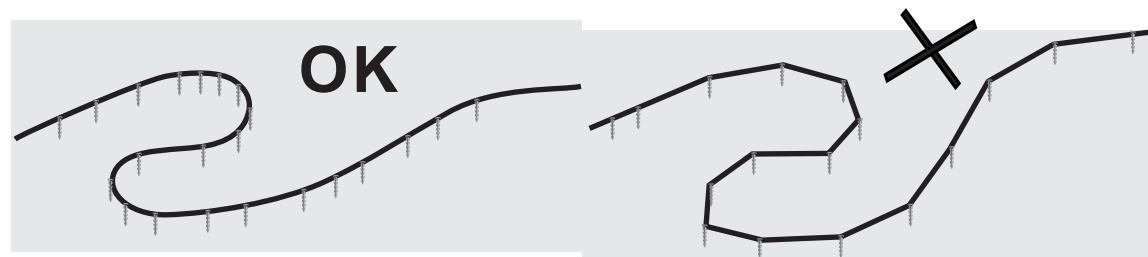
It is preferable to staple down the virtual wire, if you want to make adjustments to the virtual wire during the first few weeks of operation.

- **Bury the wire**

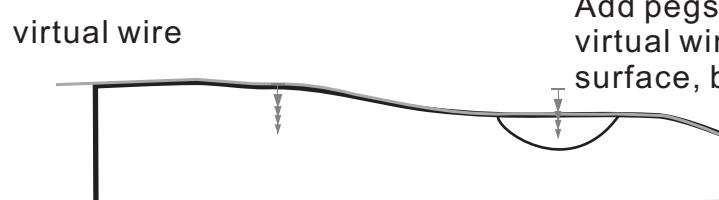
It is preferable to bury the virtual wire if you want to dethatch or aerate the lawn.

If necessary both methods can be combined so one part of the virtual wire is stapled down and the remainder is buried.

- Dig virtual wire with pegs 1 meter per piece in straight-line. Dig corner as picture.



- Bury virtual wire below grass and fasten it on the ground with pegs, so that the mower should not cut the wire. If the grass grow up, we can still keep the virtual wire as before.

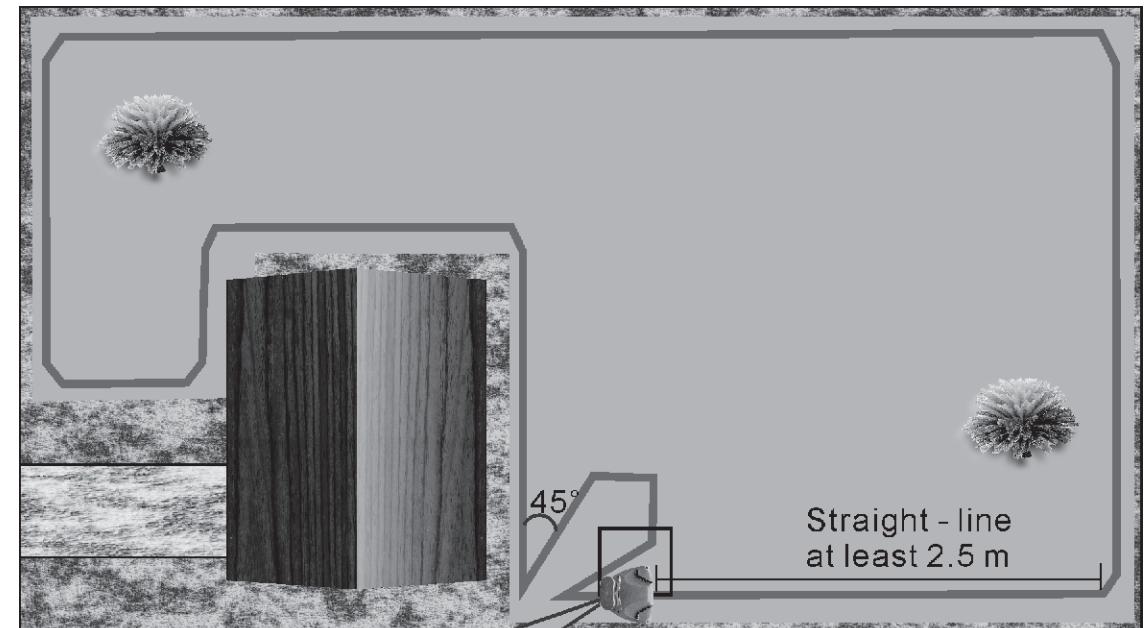


Add pegs in order to pull the virtual wire down to the ground surface, below the grass tips.

IMPORTANT INFORMATION

Hard or dry ground may cause pegs to break when driving them in. In extreme cases, watering the lawn where the pegs will be driven.

- A minimum distances of front charging station and obstacle is 2 meters. And make sure the distance from corner to front of charging station is at least 2.5 meters. Make sure to lay a 2.5 meters minimum straight-light of virtual wire in front of charging station.

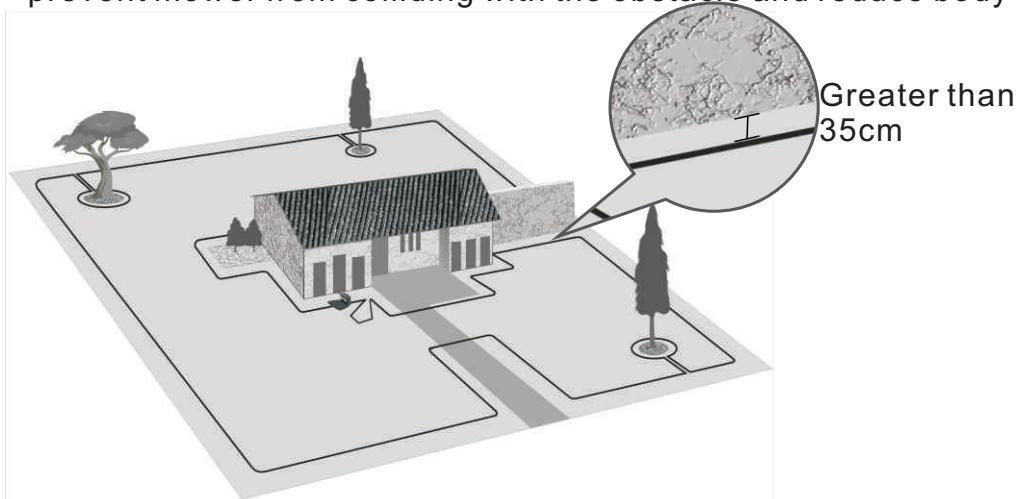


IMPORTANT INFORMATION

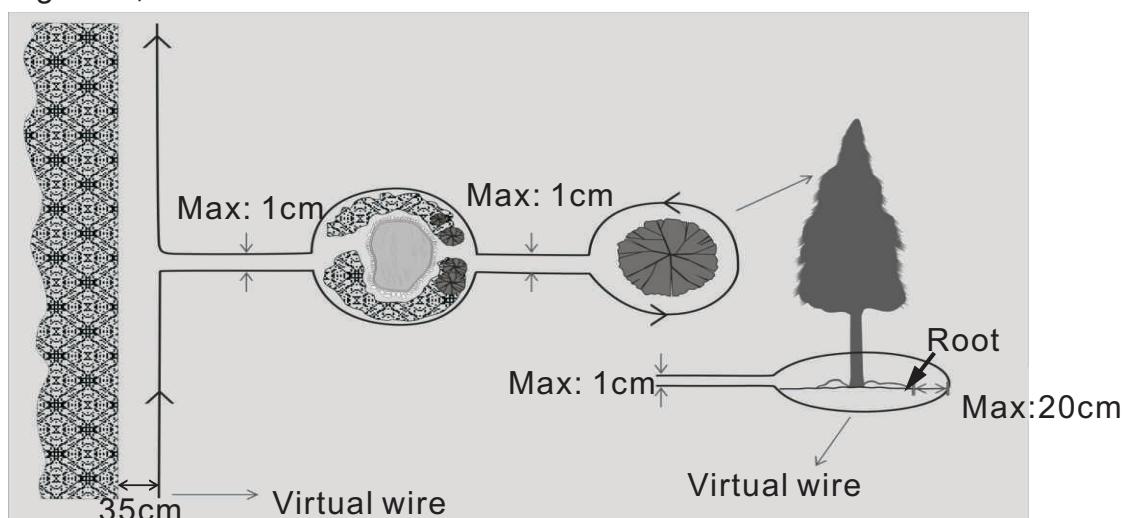
The charging station is not water-proof, It's best to make a Rain Shed above the charging station.

3. INSTALLATION

- If a high obstacle, for example a wall or fence, borders the working area, the virtual wire should be laid at least 35cm from the obstacle. This will prevent mower from colliding with the obstacle and reduce body wear.



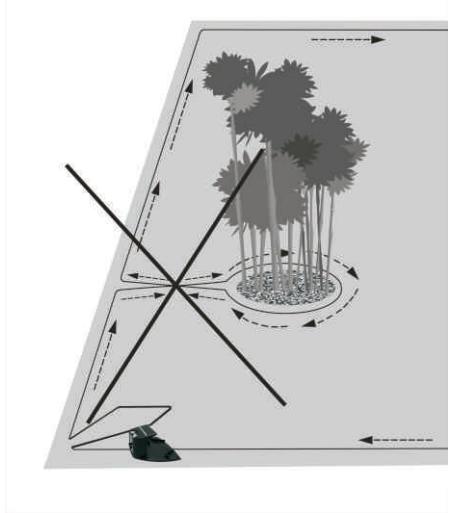
- Use the virtual to demarcate areas inside the working area by creating islands around obstacles that can not withstand a collision, for example, flower beds and fountains. Run the cable out to the area, route it around the area to be demarcated and then back along the same route. If staples are used, the wire should be laid under the same staple on the return route. When the virtual wire to and from the island are close together, the mower can drive over the wire.



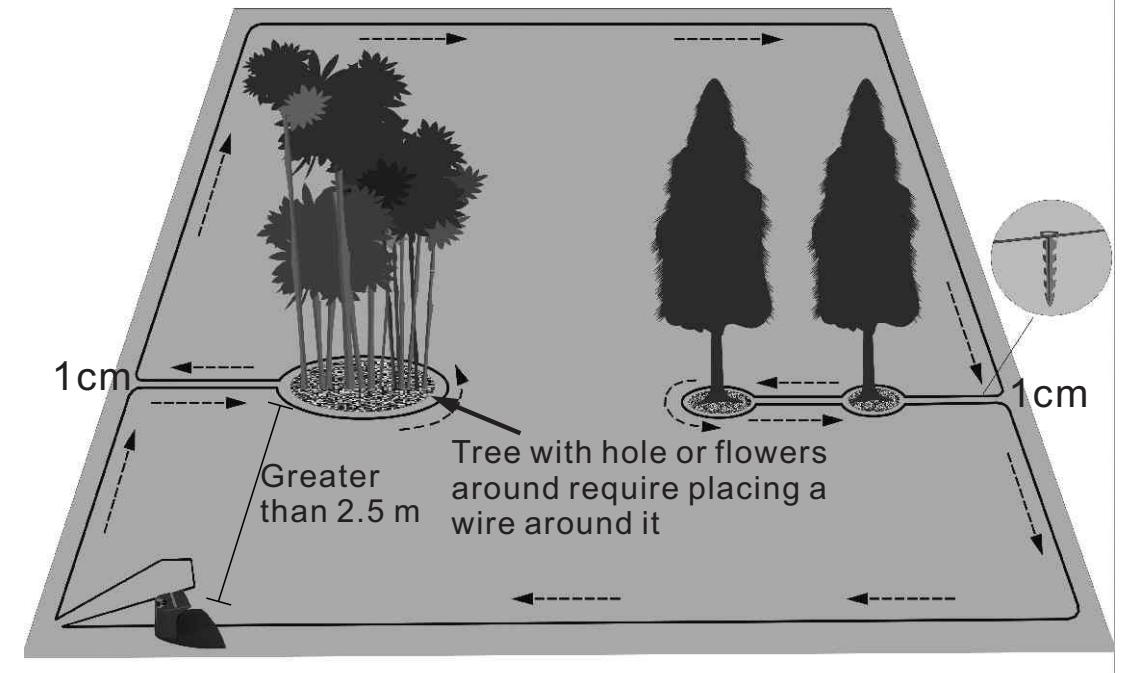
3. INSTALLATION

- The wires leading to the island and returning from it should be parallel and touching. But do not cross them!

If protected obstacles are grouped closely together demarcate them by a single. Continuous virtual island if obstacles are close to edge, leave them out of the mowing area.

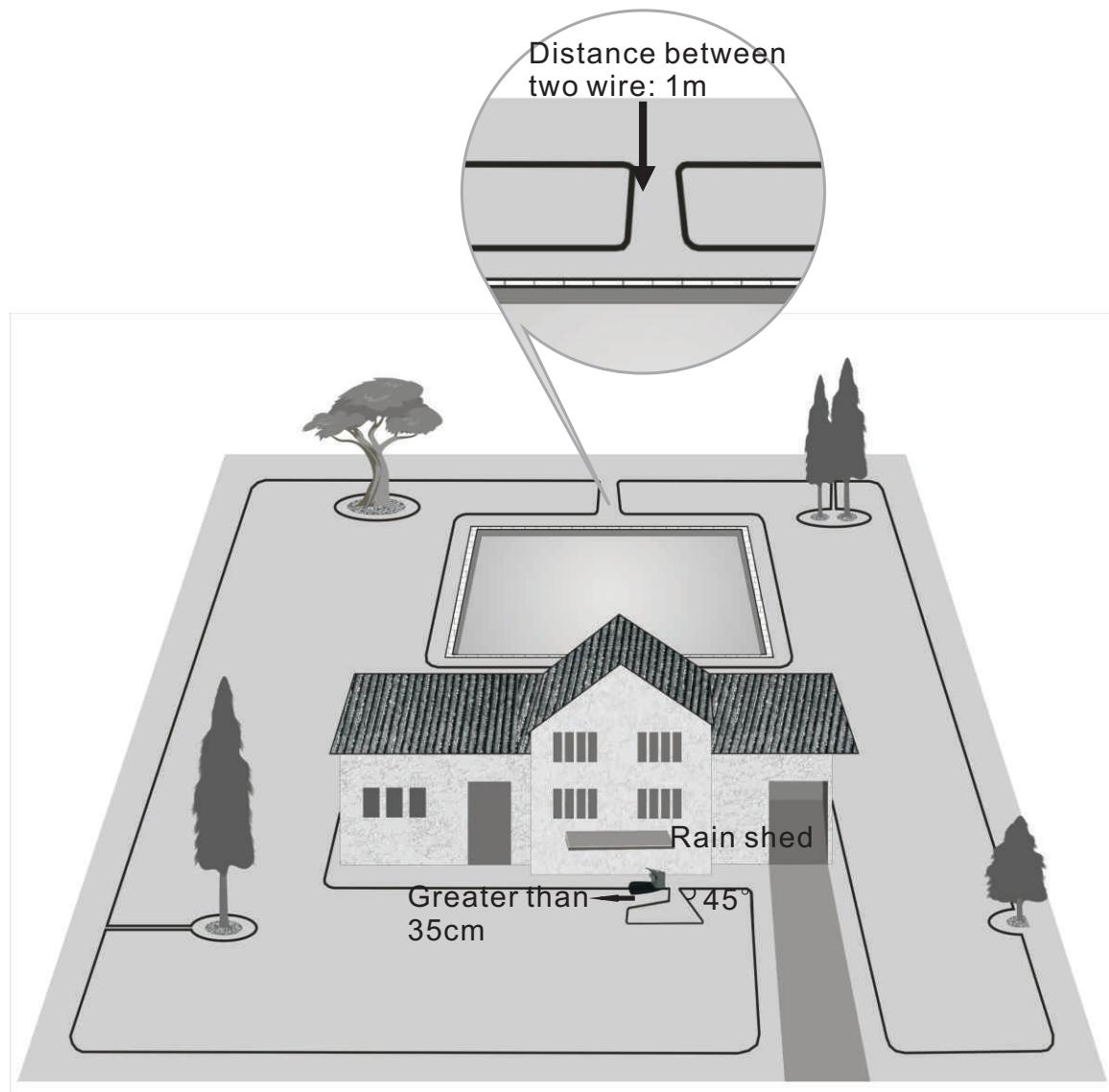


- The distance between charging station and virtual loop should at least 2.5 meters.



3. INSTALLATION

- How to set virtual wire on the ground which has swimming pool.

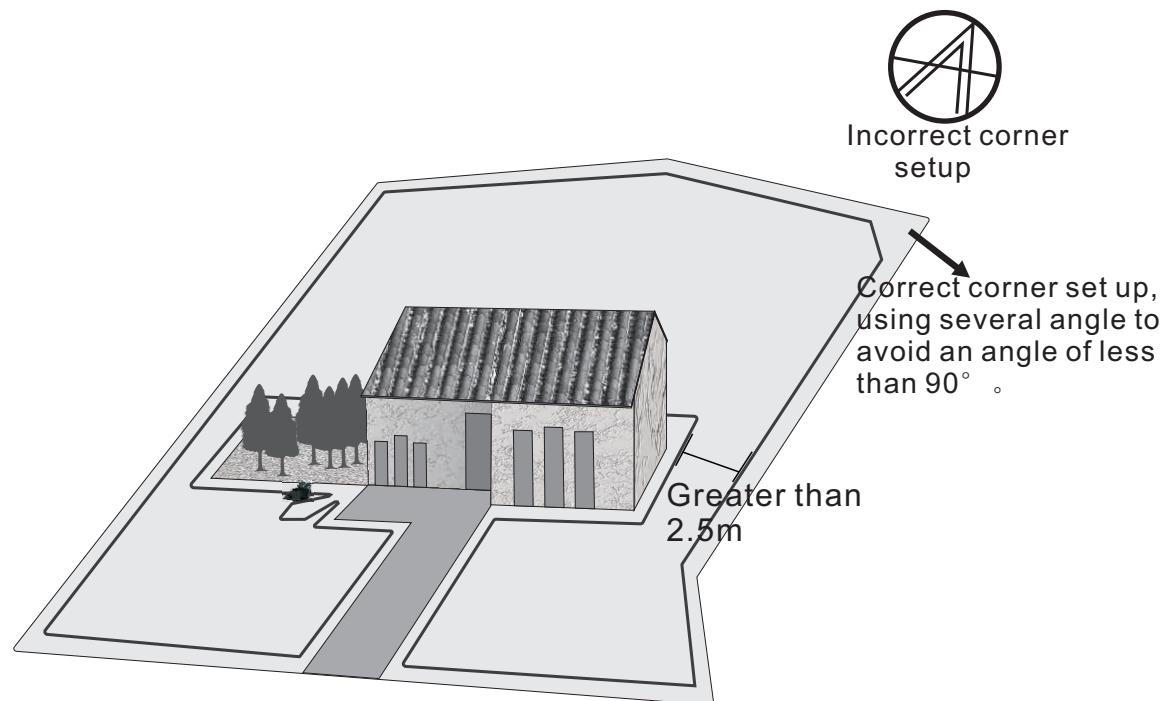


IMPORTANT INFORMATION

The charging station and charger is not water proof. It's best to set a Rain Shed above the charging station.

3. INSTALLATION

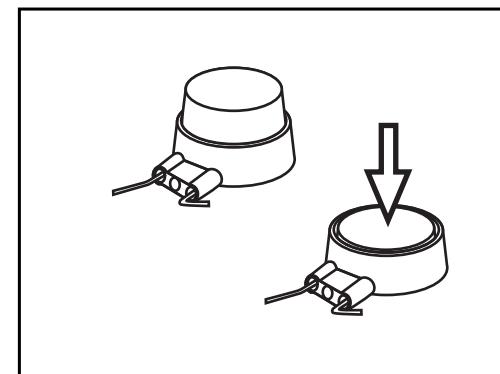
- Care must be taken not to create a corner sharper shorter than 90 degrees when setting up virtual wire. A corner sharper less than 90 degrees can cause the mower to lose track of virtual wire. We can make greater than 90 degrees corner like follow picture shows.



Proper setup in sharp corners

- Joining the boundary wire .
If the boundary wire is not long enough and needs to be spliced: Use original solderless coupler. It is waterproof and gives a reliable electrical connection.

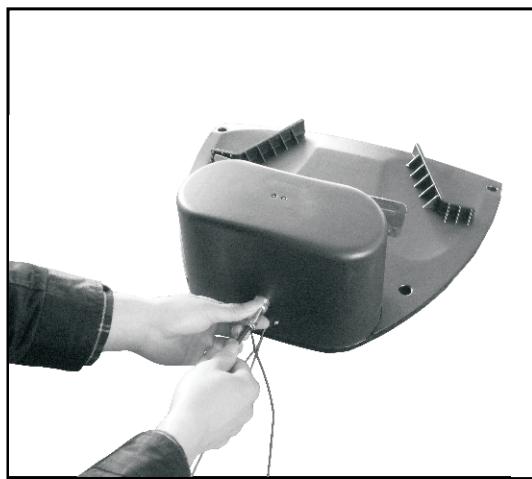
To splice: Insert both cable ends in the coupler. Now press down the button on top of the connector fully. Use a pair of pliers or the like, as the button on the connector is difficult to press down by hand



3. INSTALLATION

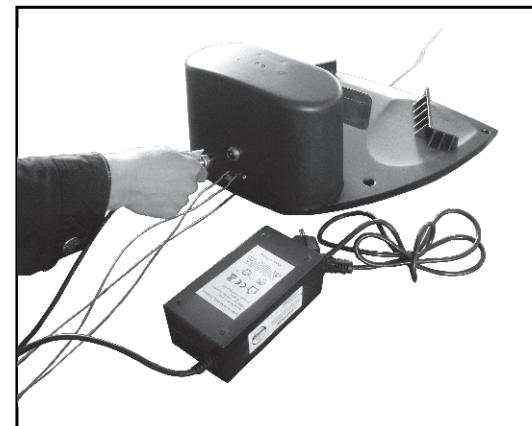
3.5 Virtual wire and charging station connecting

- Connect two ends of virtual wire to patch jack (virtual wire terminal located on charging station) randomly, there is no positive and negative.
- Redundant virtual wire must be cut.

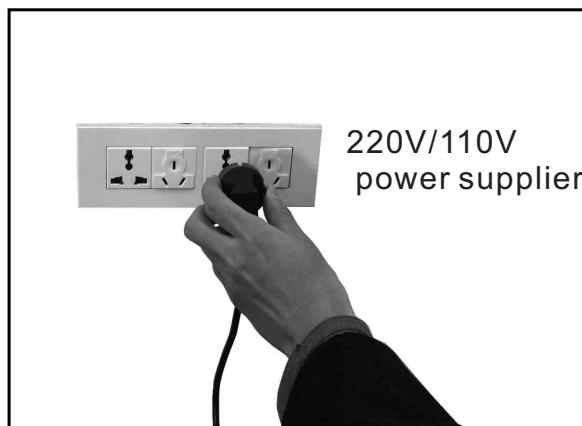


3.6 Power connection

1. Insert charger to the station.



2. Connect charger with power supplier.



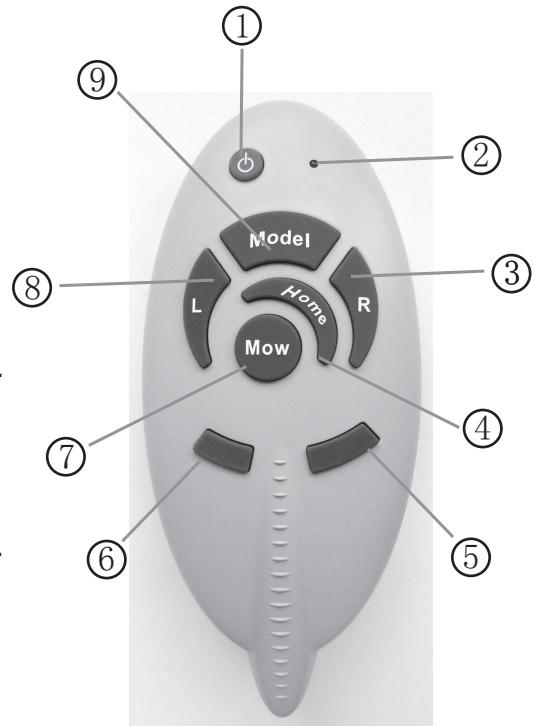
WARNING

The charger is not water-proof therefore it must be located on a place which is dry and ventilated.

4. REMOTE CONTROL

4.1 Remote control

- ① To stop the mower. Press it, the mower enters taskstate.
- ② Indicator light.
- ③ Go right.
- ④ Press it during mower is working, it goes back to charging station.
- ⑤ Effected while mower in taskstate. User has to stop the mower first, then press it, the mower enters MANUAL pattern.
- ⑥ Effected while mower in taskstate. User has to stop the mower first, then press it, the mower enters AUTO pattern.
- ⑦ Turn ON/OFF blade.
- ⑧ Go left.
- ⑨ Speed up



IMPORTANT INFORMATION

③⑧⑨

These Three buttons only effected in MANUAL pattern.

5. USE

5. Use

IMPORTANT INFORMATION

Operation with Auto Pattern

- Do not leave the machine to operate unattended if you know that there are pets, children or people in the vicinity

Operation with Manual Pattern

- Mow only in daylight or in good artificial light.
- Avoid operating the appliance in wet grass.
- Do not operate the appliance when barefoot or wearing open sandals.
- Always wear substantial footwear and long trousers.
- Always be sure of your footing on slopes.
- Use extreme caution when reversing the appliance towards you.
- Always switch on the mower according to instructions with feet well away from the blade.



WARNIN

Read the safety instructions before you start your mower.



WARNIN

Keep your hands and feet away from the rotating blade. Never put your hands or feet close to or under the body when the motors are running.

5.1 Preparation

- Ensure the correct installation of the virtual wire delineation system as instructed
- Periodically inspect the area where the appliance is to be used and remove all stones, sticks, wires, bones, and other foreign objects especial the objects' height is less than 6cm.
- Periodically visually inspect to see that the blades, blade bolts and cutter assembly are not worn or damaged. Replace worn or damaged.

5. USE

blades and bolts in sets to preserve balance.

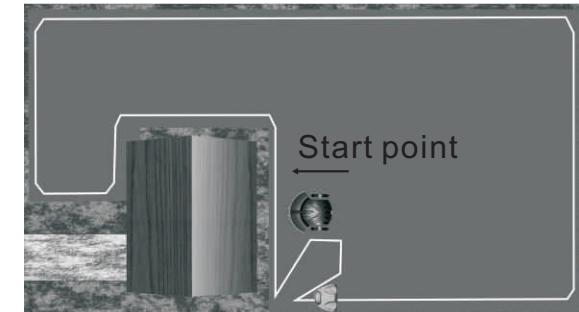
- On multi-spindle appliances, take care as rotating one blade can cause other blades to rotate
- Connect two terminals of virtual wire to charging station, and ensure virtual wire is in good connecting. (Light on charging station is in colorless).
- Insert charger to charging station and screw it. And then connect charger to power supplier. Ensure charging station is in good connecting, light on charging station is in Green.

IMPORTANT INFORMATION

User can't start the mower if virtual wire and charging station has problem.

5.2 Starting the mower

1. Take the mower to start point.



2. Turn the key switch on.

3. Clockwise rotate Emergency switch,

4. Select operate pattern (Auto pattern or Manual pattern) from Remote control.

5. The mower start.

5.3 Stopping mower /Turn off mower

1. Press power button from remote control.
Mower stops, the blade motor stops.
mower goes into taskstate.
2. The appliance also can be turned off by
press emergency switch directly.
3. Turn off the mower by anti-clockwise
the key switch.

5.4 Emergency Switch

Press emergency switch at any time the
mower power off at once. User has to
restart the appliance.



5.5 Recharging

Recharge Voltage:24V (Lead-acid battery) / 29.4V(Lithium battery)
Recharge current: 2A

- The mower could goes back to recharging automatically if it is power less. Or press the Home button from remote control, the mower also could goes back to station for recharge.
- The mower also can recharges by charger directly.

Steps as follow:

1. Turn off the mower by key.
2. Insert charger and screw the
Knob.
3. Connect the charger to power
supplier.
4. Connect the charger to power
supplier.



WARNIN

The charger is not water-proof therefore it must be located on
a place which is dry and ventilated.

6. MAINTENANCE AND STORAGE

6. Maintenance and storage

- During maintenance operations, use the individual protections indicated by the Manufacturer, especially when intervening on the blade.
- Before performing maintenance operations, make sure that the robot has stopped in safety conditions.

PROGRAMMED MAINTENANCE INTERVALS CHART

Frequency	Component	Type of operation	Reference
Every week	Blade	Clean and check the efficiency of the blade	See "Robot cleaning"
		If the blade is bent due to an impact or if it is worn-out, replace it.	See "Blade replacement"
Every month	Robot	Carry out cleaning	See "Robot cleaning"

6.1 Robot cleaning

1. Stop the robot in safety conditions.



2. Wear protective gloves.

6. MAINTENANCE AND STORAGE

3. Clean all the outside surfaces of the robot with a sponge soaked in warm water.
4. Do not use solvents or benzene so not to damage the varnished surfaces and the plastic components.
5. Do not wash the inside parts of the robot and do not use water jets in pressure so not to damage the electric and the electronic components.



WARNING

Never use a high-pressure washer or even running water to clean the robot.



6. Check the lower part of the robot (cutting blade area and wheels) and remove the deposits and/or residues that might obstruct the correct functioning of the robot.
7. To remove the deposits and/or other residues from the blade, use a suitable brush.
8. Clean the outside of the charging station from any accumulated residues.
9. Keep all nuts, bolts and screws tight to be sure the appliance is in safe working condition.
10. Replace worn or damaged parts for safety.
11. Ensure that only replacement cutting means of the right type are used.
12. Ensure that batteries are charged using the correct charger recommended by the manufacturer.
13. Incorrect use may result in electric shock, overheating or leakage of corrosive liquid from the battery.

6. MAINTENANCE AND STORAGE

14. In the event leakage of electrolyte flush with water/neutralising agent, seek medical help if it comes into contact with the eyes etc.
15. Servicing of the appliance should be according to manufacturers instructions. This product (include battery pack) must be disposed of at a designated collection point for electrical and electronic waste. For more information, contact your local city office or the shop where you purchased the product.

6.2 Robot Storage

Packed the mower and all spareparts with the original package, and storage the carton off the ground in a cool, dry place. Temperature should not be colder than -4°F (-20°C)

6.3 Blade replacement

Blade model: TC-GB

Specifications: 14L

Blade replace steps:

1. Stop the robot in safety conditions.



2. Wear protective gloves.



3. Turn the Robot upside down.

4. Unscrew the blade and remove it.

5. Replace a new blade and screw it.

6. Turn the mower to upside.

6. MAINTENANCE AND STORAGE

6.4 Battery

The battery is maintenance-free, but has a limited life span of 1-3years.

Battery life is dependent on the length of the using season and how many hours per week the robot is used. A long season or many hours of use per week, means that the battery must be replaced more regularly.

IMPORTANT INFORMATION

Charge the battery fully at the end of the season before winter storage.

- Attentions for lead-acid batteries

Charge the batteries at least once every six months of they are at 25°C . The interval of this charge should be reduced to 50% by each 10°C rise in temperature above 25°C . The self-discharger state, their capacity may not recover ever after charge. If the batteries are stored for more than a year at room temperature. The life of batteries may be shortened.

Store the batteries starting from fully charged state to prevent the life of the batteries being shortened.

Use the batteries as quickly as possible after receiving them as they gradually deteriorate even under proper storage conditions.

- Attentions of lithium batteries

Please charge the lithium batteries in accordance with standard time and procedures.

When the power is too low. It should be started charging as soon as possible.

Storage, we suggest the optimum storage of lithium battery is with 40% power and keep in the shade.

- Disused battery processing

Please contact the nearest waste treatment center and consultation with recycling and proper disposal of views.

7. TROUBLE SHOOTING

7. Trouble shooting

Problem	Possible reasons	Solutions
After turn on the mower by key and set operate pattern, but the mower still can not start. And the charging station is beeping.	1. The virtual wire fails to send signals. 2. The virtual is broken	1. Check the virtual wire light (colorless). Be sure the virtual wire is connected to the charging station that is motion, and there is no loose place. 2. Connect the wire with virtual wire connectors.
After turn on the mower by key and set operate pattern, but the mower still can not start	No power to plug receptacle or main power is shut off. Bad communication between charging station and mower	Check the power and check the plug. Connect charging station with power supplier.
Mower stop working and beeping.	Mower is lifted over 2CM from the ground.	Put the mower in lever ground, turn off the mower and restart it.
Remote control does not work	The electricity power is low	Change batteries

7. TROUBLE SHOOTING

Problem	Possible reasons	Solutions
Mower stop working and beeping.	1. Cutting height too low. 2. Blade or running wheels strike hard objects. 3. The mower is trapped in lawn.	1. Adjust the cutting height to suitable height. 2. Clean the grass and make sure it is free from hard objects. 3. Clear the lawn where the mower is trapped or restart the mower in another place.
Mower stop working and beeping.	Mower is tilted over than 30 degree from the ground	Put the mower in lever ground, turn off the mower and restart it by enter password and choose operate pattern.
Mower stop working and beeping.	1. Strike bump sensors 8 times continuously. 2. Bump sensors are locked. 3. Wires of bump sensors have be cut off. Bump sensor is broken.	1. Restart the mower 2. Free bump sensors 3. Change new wires of bump sensors. Send the mower to provider and change the bumper sensors.

7. TROUBLE SHOOTING

Problem	Possible reasons	Solutions
The batteries can not recharged	Power nearing natural end of life	<ol style="list-style-type: none"> Send the mower to service station and replace the battery Check whether the charger is well connected.
	Grass is extremely overgrown or very wet	Cut the grass appropriate height.
	Terrain needs landscaping repairs.	Fill in all holes, cover or exclude all exposed roots in order to smooth the terrain.
Mower does not complete the edge.	Obstacle along the path	Watch the full operation of edge and confirm no obstacle are present
Mower drives but blade will not mow.	<ol style="list-style-type: none"> On manual pattern, Mow on remote control has been turned off. The cutting motor is broken. 	<ol style="list-style-type: none"> Turn on the mower button. Send the mower to service station and replace a new cutting motor.

7. TROUBLE SHOOTING

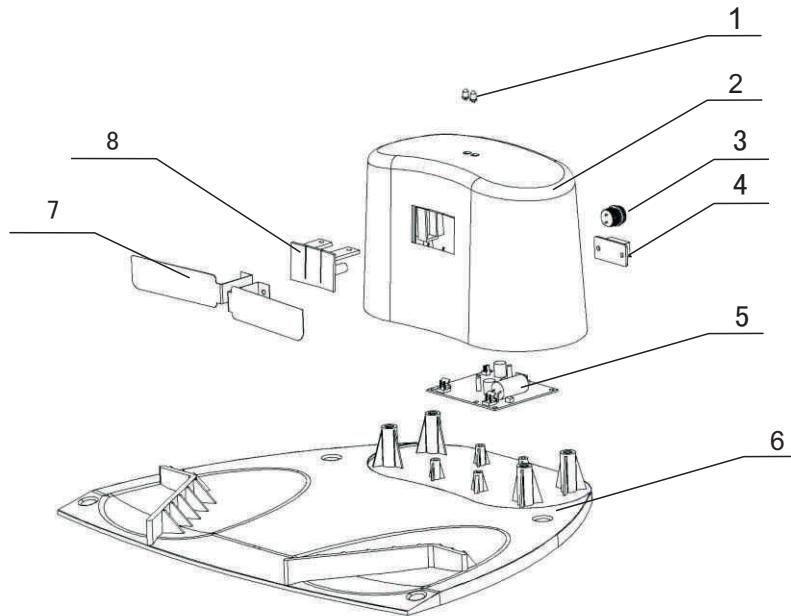
Problem	Possible reasons	Solutions
Short run time, operates less time than normal	Power is not fully charged for operation	Recharge the mower fully.
Mower does not detect the charging station contacts.	The ground before the charging station is not flat.	Reset the charging station in a flat place.
Mower reached the charging station when its contacts are above the charging station contacts.	Height difference between the charging station and the lawn surface at the entrance to the charging station.	Confirm the ground before the charging station is leveled with the charging station if necessary fill area with dirt and level off.
The robot behaves in an anomalous manner around the flower beds.	Virtual wire incorrectly placed	Relocate the virtual wire
The robot is very noisy	<ol style="list-style-type: none"> Damaged running motor Grass too high 	<ol style="list-style-type: none"> Get the motor repaired or replaced by service station Increase the cutting height or use a normal lawn mower.

7. TROUBLE SHOOTING

Problem	Possible reasons	Solutions
The robot is very noisy	1. Damaged cutting blades 2. Cutting blade flooded by residues(tapes, ropes, plastic fragments, etc) 3. The start of the robot occurred with obstacles being too closed (less than 1m away) or in presence of unexpected obstacles (fallen branches, forgotten objects, etc.)	1. Replace the blade with a new one. 2. Stop the robot in safety conditions; use protection gloves to avoid the risk of cuts on hands; remove the fold cause from the blade. 3. Start the robot in a new place.

8. EXPLODED VIEW

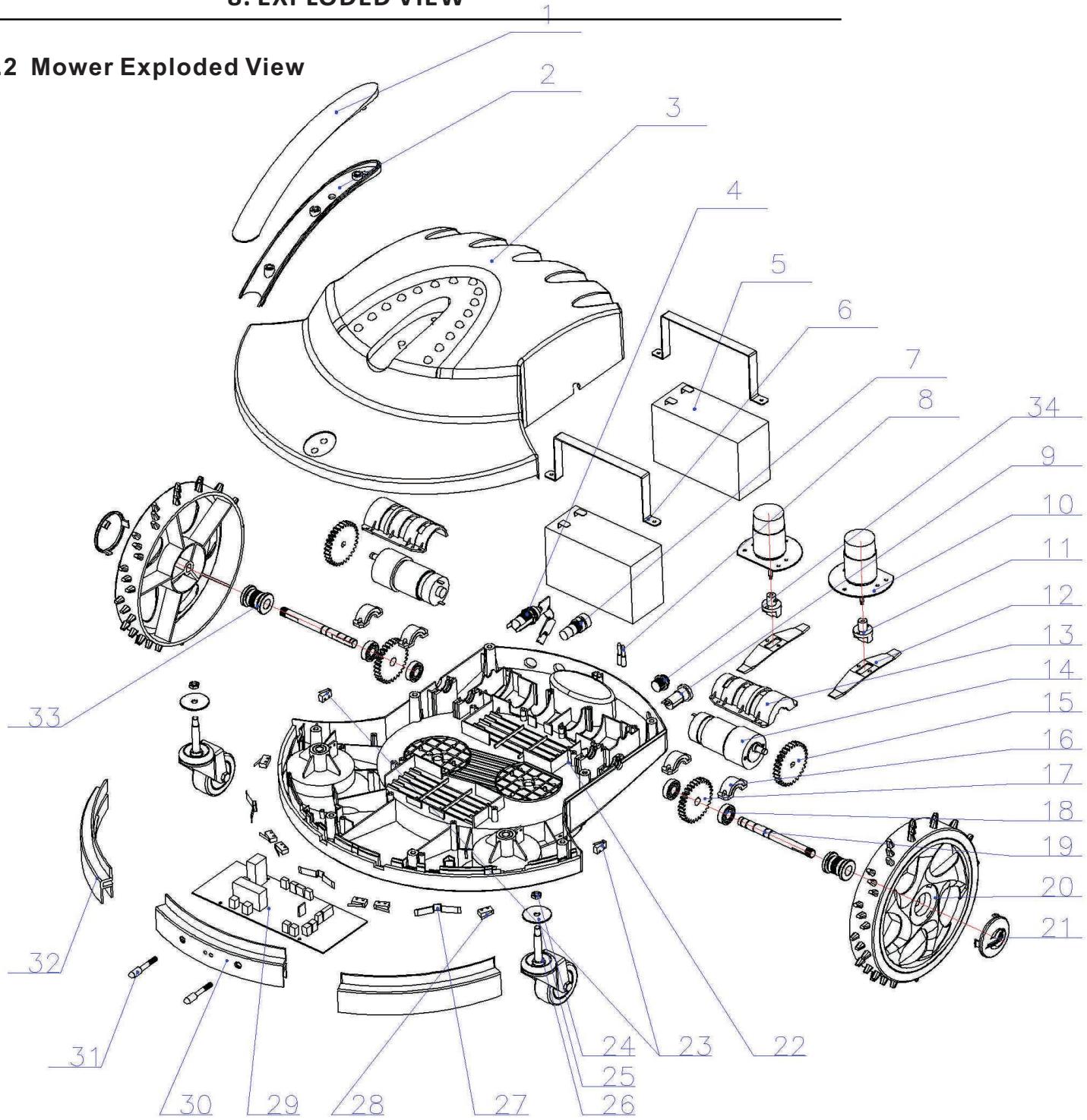
8.1 Charging Station Exploded View



- 1.Light
- 2.Top cover
- 3.Power terminal
- 4.Virtual wire terminal
- 5.PCB
- 6.Underpan
- 7.Copper sheet permanent seat
- 8.Copper sheet

8. EXPLODED VIEW

8.2 Mower Exploded View



1	Handle-top
2	Handle-down
3	Up cover
4	Key switch
5	Lead-acid Battery
6	Batten of battery
7	Power light
8	Rain sensor
9	Emergency switch
10	Cutting motor
11	Blade holder
12	Blade
13	Motor pressure plate
14	Running motors
15	Running motor gear
16	Bearing pressure plate
17	Gear
18	Bearing
19	Axle
20	Wheel
21	Shell
22	Bottom cover
23	Lift sensor
24	Screw cap
25	Gasket
26	Omni-directional wheels
27	Spring sheet
28	Micro switch
29	PCB
30	Middle bumper
31	Charging head
32	Side bumper
33	Oilseal
34	Charging terminal